Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A semiconductor signal manipulating device comprising:

a signal input carrier for inputting an applied electrical signal and comprising an input terminal in electrical communication with a input contact, the input contact being within a well region, the input contact and the well region being of a same conductivity type;

a plurality of conductive fingers in electrical communication with the input contact; and

signal manipulating means in electrical communication with the plurality of conductive fingers and the well region for manipulating the applied electrical signal upon being activated by application of an electrical manipulating signal to the plurality of conductive fingers.

2. (Original) The semiconductor signal manipulating device of claim 1, wherein the plurality of conductive fingers are comprised of polysilicon and are disposed over a gate oxide layer.

3. (Original) The semiconductor signal manipulating device of claim 1, wherein the signal manipulating means is for manipulating the applied electrical signal by applying a first electrical manipulating signal to a first set of the plurality of conductive fingers and a second electrical manipulating signal to a second set of the plurality of conductive fingers, the first set of the plurality of conductive fingers and the second set of the plurality of conductive fingers being arranged in an alternating configuration, and the second electrical manipulating signal being opposite in polarity to the first electrical signal.

4. (Original) The semiconductor signal manipulating device of claim 3, wherein the signal manipulating means is for creating a potential variance in the well region in which an electrical potential under the first set of the plurality of conductive fingers is shifted 180° in phase from the electrical potential under the second set of the plurality of conductive fingers.

5. (Original) The semiconductor signal manipulating device of claim 1, wherein the applied input electrical signal is channelized by the well region.

6. (Original) The semiconductor signal manipulating device of claim 1, wherein the input electrical signal is an RF current that is channelized by the well region.

7. (Original) The semiconductor signal manipulating device of claim 1, further comprising a signal output carrier comprising a plurality of output contacts, each of the plurality of output contacts being in electrical communication with a corresponding one of the plurality of conductive fingers, the plurality of output contacts further being located within a moderately doped region different in conductivity type than the plurality of output contacts and the well region.

8. (Original) The semiconductor signal manipulating device of claim 7, wherein the signal output carrier comprises a first terminal and a second terminal in electrical communication with the plurality of heavily doped output contacts, the first terminal being in electrical communication with the first set of the plurality of conductive fingers and the second terminal being in electrical communication with the second set of the plurality of conductive fingers.

9. (Original) The semiconductor signal manipulating device of claim 1, wherein the applied electrical signal is time varied.

10. (Original) The semiconductor signal manipulating device of claim 1, wherein the signal manipulating means further comprises first and second terminals in parallel with one another, the first terminal for applying a first electrical signal and the second terminal for applying a second electrical signal, the first and second electrical signals for creating a capacitive variance within the well region.

11. (Original) The semiconductor signal manipulating device of claim 1, wherein the heavily doped input contact and the well region are of N-type conductivity.

12. (Withdrawn) An RF signal control device comprising:

an RF signal input;

a plurality of polysilicon conductive finger gates in electrical communication with the RF signal input, the plurality of polysilicon conductive finger gates further comprising first and second groups arranged in an alternating configuration;

a differential voltage terminal means in electrical communication with the first and second groups of the plurality of polysilicon conductive finger gates; and

an IF signal output in electrical communication with the plurality of polysilicon conductive finger gates for outputting a first differential current from the first group and the second group.

13. (Withdrawn) The RF signal control device of claim 12, wherein the differential voltage terminal means comprises first and second voltage terminals, a first voltage being applied to the first voltage terminal and a second voltage being applied to the second voltage terminal.

14. (Withdrawn) The RF signal control device of claim 13, wherein the second voltage is opposite in polarity to the first voltage.

15. (Withdrawn) The RF signal control device of claim 12, wherein the IF signal output comprises first and second output terminals, the first output terminal being in electrical communication with the first group of the plurality of polysilicon conductive finger gates, the second output terminal being in electrical communication with the second group of the plurality of polysilicon conductive finger gates.

16. (Withdrawn) The RF signal control device of claim 12, wherein the plurality of polysilicon conductive finger gates are disposed above an N-type conductivity well, the plurality of polysilicon conductive finger gates further defining lateral potential wells in electrical communication with the RF signal input, the plurality of polysilicon conductive finger gates further channelizing an applied RF current flowing through the RF current input.

17. (Withdrawn) The RF signal control device of claim 12, wherein the differential voltage terminal means comprises first and second voltage terminals, a first low voltage being applied to the first voltage terminal and a second high voltage being applied to the second voltage terminal,

wherein the plurality of polysilicon conductive finger gates are disposed above an N-type conductivity well, the plurality of polysilicon conductive finger gates further defining lateral potential wells in electrical communication with the RF current input and channelizing an applied RF current flowing through the RF signal input, and

wherein the first low voltage depletes a section of the N-type conductivity well.

18. (Withdrawn) The RF signal control device of claim 12, wherein the plurality of polysilicon conductive finger gates are disposed on gate oxide layer above an SOI wafer, the plurality of polysilicon conductive finger gates further defining lateral potential wells in electrical communication with the RF signal input and channelizing an applied RF current flowing through the RF signal input.

19. (Withdrawn) The RF signal control device of claim 18, wherein the SOI wafer further comprises a patterned heavily doped contact, and the SOI wafer further being disposed above a buried oxide layer.

20. (Withdrawn) The RF signal control device of claim 12, wherein an RF signal is outputted from a transceiver and inputted into the RF signal input.

21. (Withdrawn) A method of mixing an applied current comprising:

channelizing the applied current by a series of isolated lateral potential wells;

applying a first voltage to a first set of the series of isolated lateral potential wells and a second voltage to a second set of the series of isolated lateral potential wells;

subsequently directing a current flow from the first set of the series of isolated lateral potential wells to a first output terminal and a current flow from the second set of the series of isolated lateral potential wells to a second output terminal as a result of applying the first and second voltages.

22. (Withdrawn) The method of mixing an applied current of claim 21, further comprising oscillating the applied current.